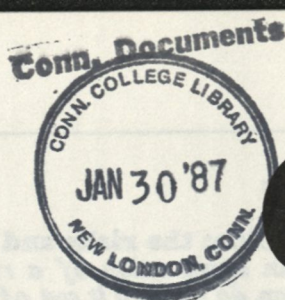
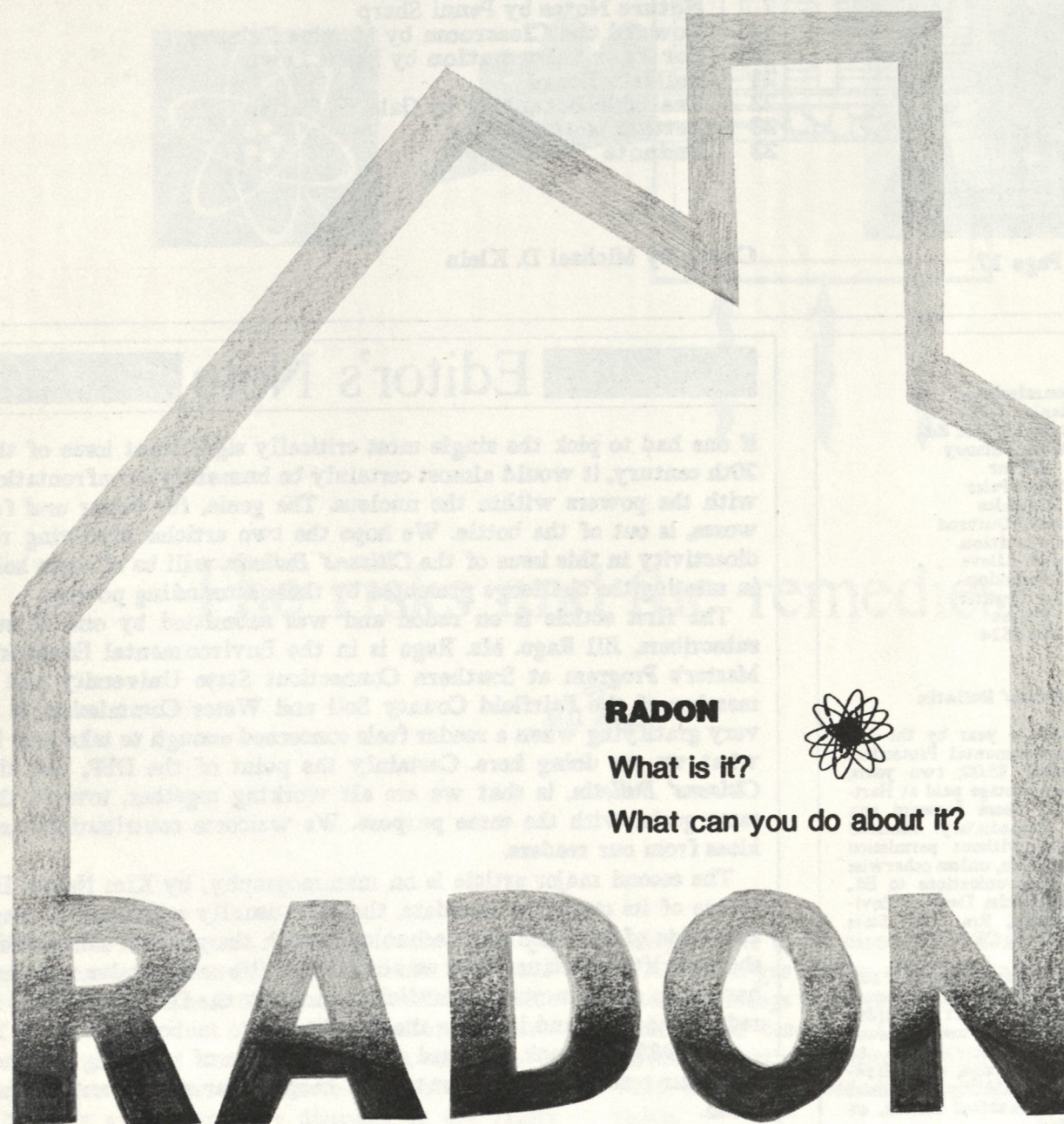


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RADON

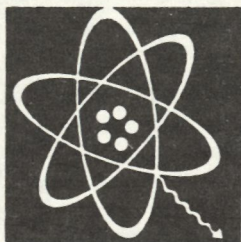
What is it?



What can you do about it?

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Cover by Michael D. Klein

Commissioner
Stanley J. Pac
Director Info & Ed
William Delaney
Editor
Robert Paier
Graphics
Rosemary Gutbrod
Composition
Caryn Alleva
Circulation
Olive Tygher
Phone
566-5524

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Editor's Note

If one had to pick the single most critically significant issue of the 20th century, it would almost certainly be humanity's confrontation with the powers within the nucleus. The genie, for better and for worse, is out of the bottle. We hope the two articles involving radioactivity in this issue of the *Citizens' Bulletin* will be of some help in meeting the challenge presented by these astounding powers.

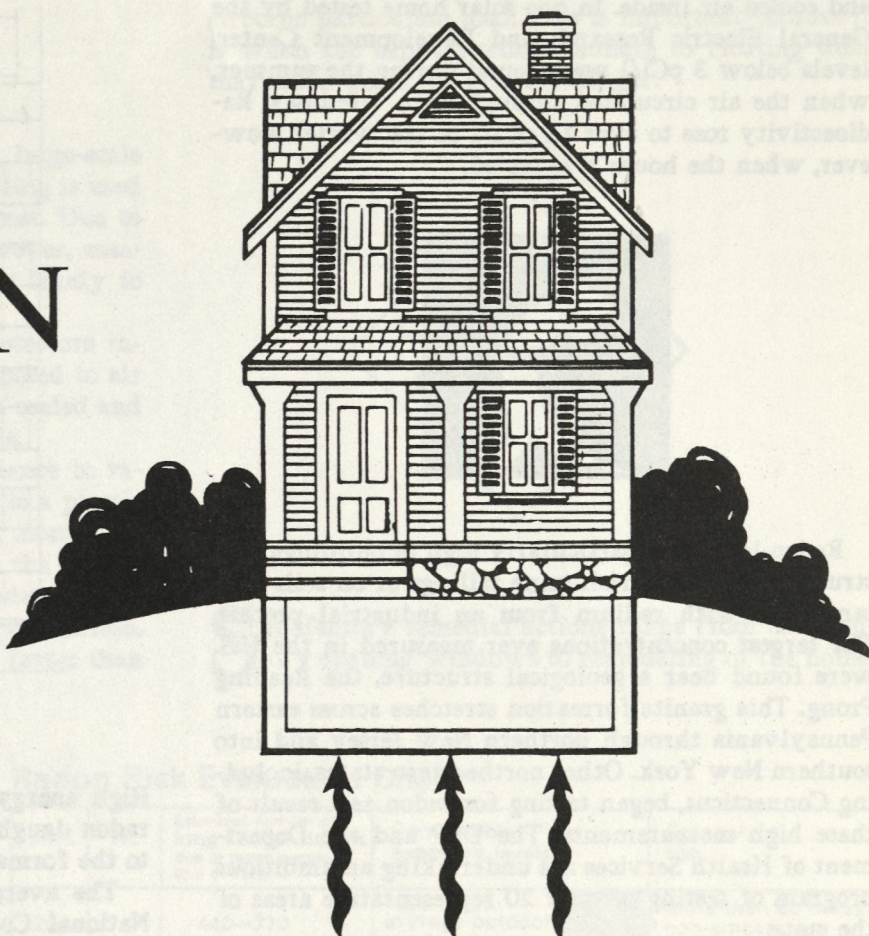
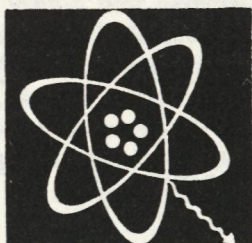
The first article is on radon and was submitted by one of our subscribers, Jill Rago. Ms. Rago is in the Environmental Education Master's Program at Southern Connecticut State University and a member of the Fairfield County Soil and Water Commission. It is very gratifying when a reader feels concerned enough to take part in what we are doing here. Certainly the point of the DEP, and the *Citizens' Bulletin*, is that we are all working together, toward the same goals, with the same purpose. We welcome contributions and ideas from our readers.

The second major article is on mammography, by Kim Nauer. By virtue of its statutory mandate, the DEP usually addresses the negative side of 20th century technology, with the positive side getting short shrift. Ms. Nauer tells us about some life-saving advances that have been made in nuclear medicine, and how the DEP is working to reduce the risks and increase the benefits.

It's 1987. We look forward to another year of working together with our readers on the great task of keeping our state beautiful and clean.

R.P.

RADON



The risks and the remedies

by
Jill Rago

Silently, without taste, color, or odor, radon gas seeps through common rock and soil. This radioactive gas results from the decay of radium, which itself is a decay-product of uranium. Radium and uranium are relatively common elements, and can be found almost anywhere. When released outdoors, radon quickly and harmlessly disperses in the freely circulating air. Outdoor concentrations of radon typ-

ically are 0.1 to 0.4 picocuries/liter (pCi/l) of air.

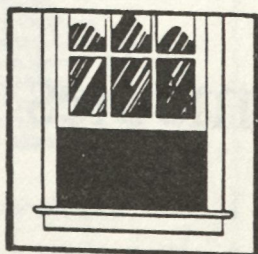
As radon gas moves easily through the ground, it enters buildings through cracks and openings in foundations and basement floors. It is this, according to Kevin McCarthy, director of DEP's Radiation Control Unit, which represents the major problem in regard to radon.

Groundwater sometimes contains natural-

ly-occurring radon in dissolved form. The radon is released into the air of the home by the churning action of showers, sinks, washing machines, and toilets. Then, once inside, the radon tends to remain there, as most buildings are designed to keep heated and cooled air inside. In one solar home tested by the General Electric Research and Development Center, levels below 3 pCi/l were found during the summer, when the air circulated through open windows. Radioactivity rose to over 12 pCi/l in the winter, however, when the house was sealed.



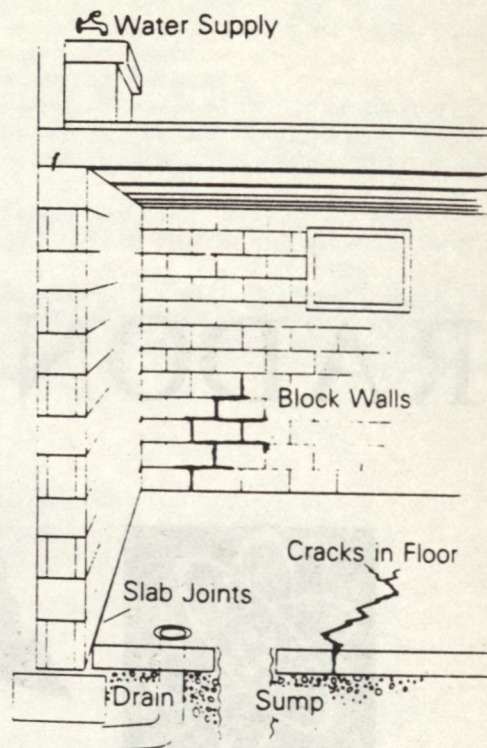
Radon levels are particularly high in buildings constructed on radium-rich mine tailings or on soils contaminated with radium from an industrial process. The largest concentrations ever measured in the U.S. were found near a geological structure, the Reading Prong. This granite formation stretches across eastern Pennsylvania through northern New Jersey and into southern New York. Other northeastern states, including Connecticut, began testing for radon as a result of these high measurements. The DEP and the Department of Health Services are undertaking an ambitious program of testing of over 20 representative areas of the state.



The principal health hazard in regard to radon involves its several radioactive decay products, called "daughters." A daughter emits radioactive alpha particles. The presence of radon has been linked to incidents of lung cancer in uranium and radium miners. Further, it has been suggested that radon is the leading cause of cancer among non-smokers. According to the U.S. Environmental Protection Agency, from 5,000 to 20,000 cases of lung cancer per year in the U.S. may be the result of indoor radon pollution.

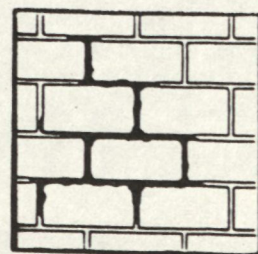
Radon daughters adhere to dust particles and, if inhaled, can lodge in the air passages of the lungs.

Common Radon Entry Points



High energy alpha particles emitted by two of the radon daughters strike and damage lung cells, leading to the formation of cancer cells.

The average indoor radon level is 1.5 pCi/l. The National Council on Radiation Protection and Measurement states that continuous exposure to 4 pCi/l over an average lifespan will result in a risk of death due to lung cancer equal to nine per 1000 people. Guidelines set by the EPA specify that a radon concentration greater than 4 pCi/l is cause for concern, and more than this calls for remedial action.



Indoor radon levels vary over time in any given home, and also may vary in homes next door to each other. Some reasons for this are the character of the soil, location of the home, building materials used, air circulation rates, atmospheric changes, type of home heating system, and the geology beneath the home.



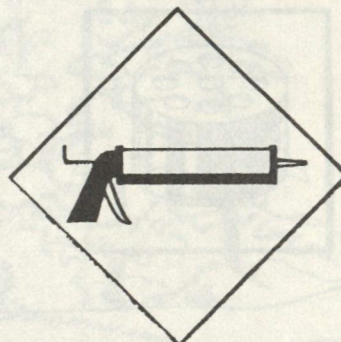
A detection technique often used for large-scale surveys is called a grab sample. Grab sampling is used because of its speed, simplicity, and low cost. Due to the variability of indoor radon levels, however, measurements obtained in this manner are not likely to represent the average annual level.

The use of charcoal-based adsorption detectors involves removing a piece of tape that is exposed to air for two to seven days. The detector is then sealed and brought or sent to a laboratory for analysis.

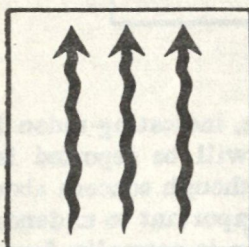
The instrument which best detects variance in radon levels is the track etch detector. This is a plastic disk which is exposed to the air for weeks, months, or even up to a year. Alpha particles strike the plastic and penetrate it, leaving a track. At the predetermined time, the instrument is dipped in a corrosive solution. The tracks left by the alpha particles etch faster than

the undamaged plastic. They are then counted under a microscope.

A radon/radon daughter detector uses a filter collection device in series with a flow-through detector, simultaneously sampling both radon gas and the total airborne particulate load. This is important because it is when the alpha particles adhere to floating dust that radon poses the greatest danger.



Satisfactory remedial actions range from occasionally opening windows to remodeling of the home,

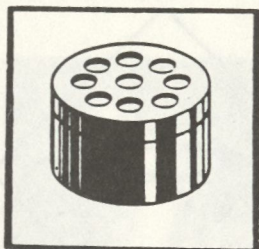


Radon Risk Evaluation Chart

pCi/l	WL	Estimated number of lung cancer deaths due to radon exposure (out of 1000)	Comparable exposure levels	Comparable risk
200	1	440—770	1000 times average outdoor level	More than 60 times non-smoker risk
100	0.5	270—630	100 times average indoor level	4 pack-a-day smoker
40	0.2	120—380		20,000 chest x-rays per year
20	0.1	60—210	100 times average outdoor level	2 pack-a-day smoker
10	0.05	30—120	10 times average indoor level	1 pack-a-day smoker
4	0.02	13—50		5 times non-smoker risk
2	0.01	7—30	10 times average outdoor level	200 chest x-rays per year
1	0.005	3—13	Average indoor level	Non-smoker risk of dying from lung cancer
0.2	0.001	1—3	Average outdoor level	20 chest x-rays per year

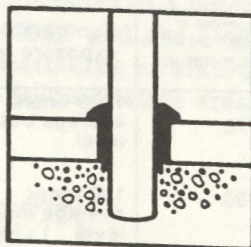
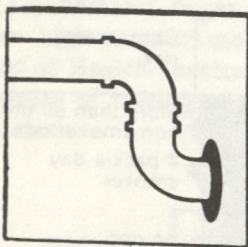
Results from devices which measure radon decay products are reported as "Working Levels" (WL). Results from devices which measure concentrations of radon gas are reported as "picocuries per liter" (pCi/l).

depending on the radon level. Common approaches include sealing cracks and openings, such as basement drains and utility openings in building foundations, installing a nylon mesh product below and around the outside walls of the foundation (which creates an air space allowing radon to vent into the atmosphere), installing fans in the basement or air purification systems in the living area, and coating the foundation.



In municipal water supplies, aeration treatment reduces radon concentration. Radon can also be removed from water by using activated-carbon filters.

Manufacturers of solar heating systems are testing devices that exchange indoor air for outdoor air while retaining the indoor air's heat.



According to Kevin McCarthy, director of DEP's Radiation Control Unit, "The DEP provides technical information to the public and to contractors on the measurement and mitigation of radon. Unless the right measurements are obtained initially, and then the right mitigating practices are put into effect, it won't be possible to resolve the problem."

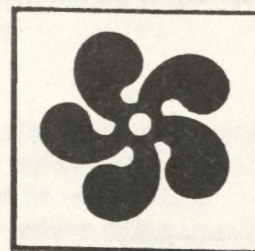
McCarthy and his staff will provide advice to contractors on doing radon measurements, explain what instruments are necessary, and — very importantly — explain how to interpret data. "If they're going into it," says McCarthy, "we want them to know what they're doing." If the results of the test are not interpreted correctly, it could cost a homeowner a lot more than it should to correct the problem. On the other hand, a person or family could be at risk and not know it.

When mitigation is determined to be necessary, the

DEP will assist the contractor in ascertaining (1) how the radon gets in and (2) how to keep it out. "Contractors know their business, but the physics involved in understanding radon is new to them, and they need this assistance." Mistakes are easy to make, according to McCarthy, and if the wrong remedial step is taken, the problem can get worse.

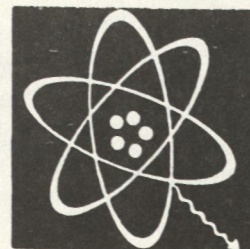
McCarthy also stated that contractors may become EPA-certified to work with radon, and the DEP is ready to provide assistance in this area.

The Natural Resources Center of the DEP is now conducting a scintillometer survey throughout the state to identify areas of high radon concentration. The survey will provide geological mapping and identification of wells which might have higher-than-normal concentrations. This data, says McCarthy, will provide guidance to the Department of Health Services. Beyond this, the DEP will be conducting additional identification and quantification studies in conjunction with the U.S. Geological Survey. Because of the large amount of granite and other geologic formations that contain uranium in the state, says McCarthy, high soil-gas radon readings are could occur.



Connecticut test results, indicating radon levels in air and water samples, will be reported later this year. In the meantime, although concern about radon may be warranted, it is important to understand that a certain level of radiation is normally found in the outdoor environment. Radon should be placed in perspective with other indoor pollution problems, which can be detected and remedied.

For further information on radon in the home, please phone the Toxic Hazards Section of the Department of Health Services at 566-8167, or the DEP's Radiation Control Unit at 566-5668.





Winter Treescapes

by
Penni Sharp

The winter is a good time to take a look at some of the evergreen trees that are found in Connecticut.

It is at this time of year when deciduous trees have dropped their leaves and the landscape seems quite barren that the coniferous (or evergreen) trees are a prominent part of the scenery.

A group of snow-covered pines or hemlocks is a picturesque sight and is probably what comes to the mind's eye when one thinks of winter. Most evergreens have symmetrical triangular shapes which give them a dignified appearance. Foliage texture is quite variable — soft among the pines, stiff and spiny for spruces, and flat and

leathery for cedars.

Not only do the evergreens provide much-needed visual relief to a winter landscape, but the trees also give protection from winter winds and cover for the many small animals that remain active during winter months. Evergreen boughs can be used as a mulch to protect the roots of other plants from deep

Red Cedar



freezes.

Although most of Connecticut's native trees are deciduous hardwoods, there are a number of coniferous trees that grow uncultivated in our state.

One of the most graceful conifers is the white pine (*Pinus strobus*). This handsome tree is the pine of northeastern forests. It is easily distinguished from other pines by its long and slender needles which occur in bundles of five (the same number of needles as letters in its common name, w-h-i-t-e). In pine woods, the fallen needles create an aromatic carpet that is (wonderfully) soft and quiet underfoot.

There are few sights as majestic as a mature, open-grown white pine silhouetted against a bright sky. White pines can reach heights of 100 feet or more. The limbs of the pine project at right angles from the dark trunk, and the twigs grow upward. Thus, the clumps of needles are massed above the heavy limbs giving the mature white pine a dramatic appearance.

The branches of white pine grow in whorls, a new one added each year. It is possible to age a tree by counting the number of whorls

from the base of the tree to its top. Three years should be added to the total for the initial years when the young seedling produces no side branches.

The cones which bear the seeds take two seasons to reach maturity. By the first season's end, the small closed upright cones can be observed clustered on branches near the tip of the tree. During the second season, the cones grow longer and hang down. When ripe, the cone scales open, allowing the two winged seeds to be released.

White pine has been a valued timber tree since settlement days. It is named for its clean, white wood. The tall straight trees were harvested extensively for mast timbers from Colonial times through the mid-19th century. The masts of the clipper ships were made of white pine. In early Colonial days, a fine was imposed for cutting white pine for masts except on private land. Mast timber was reserved for the crown, and trees were marked by the king's surveyors with a broad arrow, the king's mark.

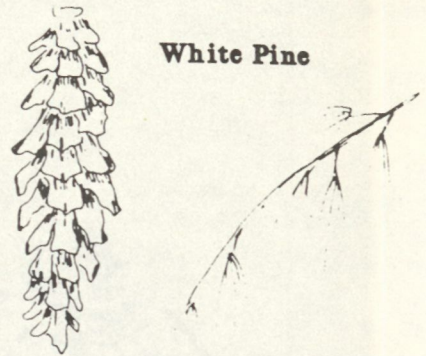
White pine has always been an important tree in the building industry. Unfortunately for the pine, its popularity resulted in the exploitation of the vast northern forests to such a degree that few original trees remain anywhere. Some of these giants had grown to a height of 200 feet or more with diameters of six feet.

Two pests are known to affect white pine. One is the white pine weevil which attacks and kills the terminal leader. One or more of the side branches then takes the place of the leader, and the result is a tree of deformed growth and reduced economic value.

The other major pest is white pine blister rust, a fungus originally brought from Europe, which attacks the inner bark.

Intermediate hosts for the blister rust are currants and gooseberries (genus *Ribes*) which have been eradicated in many areas because of

White Pine



their role in spreading the blister rust.

White pine grows best on sandy loam soils, although it can be found on a variety of sites. It grows throughout Connecticut and is most prevalent in the northwest part of the state.

Another species of pine that is found in Connecticut is the pitch pine (*Pinus rigida*). This tree is encountered in coastal areas, rocky hilltops, or sand plains. It prefers dry, sterile, sandy soils. The pitch pine is a relatively small scraggly tree whose somewhat irregular shape provides interest along the shoreline or on rocky knolls.

The needles are a yellowish green color and are borne in bundles of three. They are quite stiff, in contrast to the soft, flexible needles of white pine. Male and female cones occur separately on the same tree. Like those of a number of pines, they take two seasons to mature. The stout, thorn-tipped cones persist on the tree, sometimes several seasons after discharging seeds. This feature is one that is helpful in identifying pitch pine.

The pitch pine is a tough, small tree, enduring harsh habitats where few other trees survive. When felled or damaged by fire, the pitch pine will often produce sprouts,

something that is most unusual in conifers.

During Revolutionary War days, tar and turpentine were made from pitch pine. Its tough wood, durable even when immersed in water, was used to fashion water wheels for the many grist mills located along New England waterways.

Good winter views of this interesting tree can be had from the Branford shore, as the pitch pine is the dominant tree of the Thimble Islands. Closer looks at pitch pine are possible along the sand plains in the North Haven area.

A smallish tree that stands out in the winter landscape is the eastern red cedar (*Juniperus virginiana*). An important wildlife tree, the eastern red cedar grows widely throughout the state in open areas, such as abandoned fields, former

meadows, and roadsides. The red cedar, with its slender pyramidal shape, is unmistakable. Other characteristic features include the bluish berries (actually cones) and the leathery foliage. There are two kinds of leaves on the red cedar. Young trees have sharp needle-like leaves which are painful to the touch. The mature leaves are more rounded, with overlapping scales. There is probably some adaptive significance to the prickly young foliage, as few animals would be tempted to feed on a red cedar seedling. On older trees, both types of leaves can be seen.

The berry-like cones are food for a least 29 species of birds. Cedar waxwings and robins seem especially attracted to the fruits. In addition to food supply, the compact foliage provides shelter and nesting sites for many birds.

The wood of red cedar is both soft and resistant to rot. It is also highly aromatic. This is the wood of cedar closets and chests and of pencils. It is also used widely for fence posts and shingles because of its long-lasting quality.

Gin is made by distilling alcohol over juniper "berries," which gives it the distinctive flavor. The word "gin" derives from the French "genievre," meaning juniper berry. Some game birds reportedly become drunk on fermented berries of red cedar, causing the birds to fly erratically.

So common is red cedar in the Connecticut landscape that few of us stop to think of the many attributes of this tree. It certainly enhances the winter scene in all parts of our state, in addition to providing a haven for birds during blustery winter storms.

Eastern Hemlock



Of the many evergreens of northeastern woodlands, eastern hemlock (*Tsuga canadensis*) ranks among the highest in beauty. It is a tall, feathery tree of graceful lines. The short leaves (or needles) are flat with rounded tips. They are dark green above and marked underneath with two parallel white bands. When the wind blows and turns the leaves, the tree appears silvery-green in color.

Hemlock cones are very small. They hang down from the tree and, when open, release tiny winged

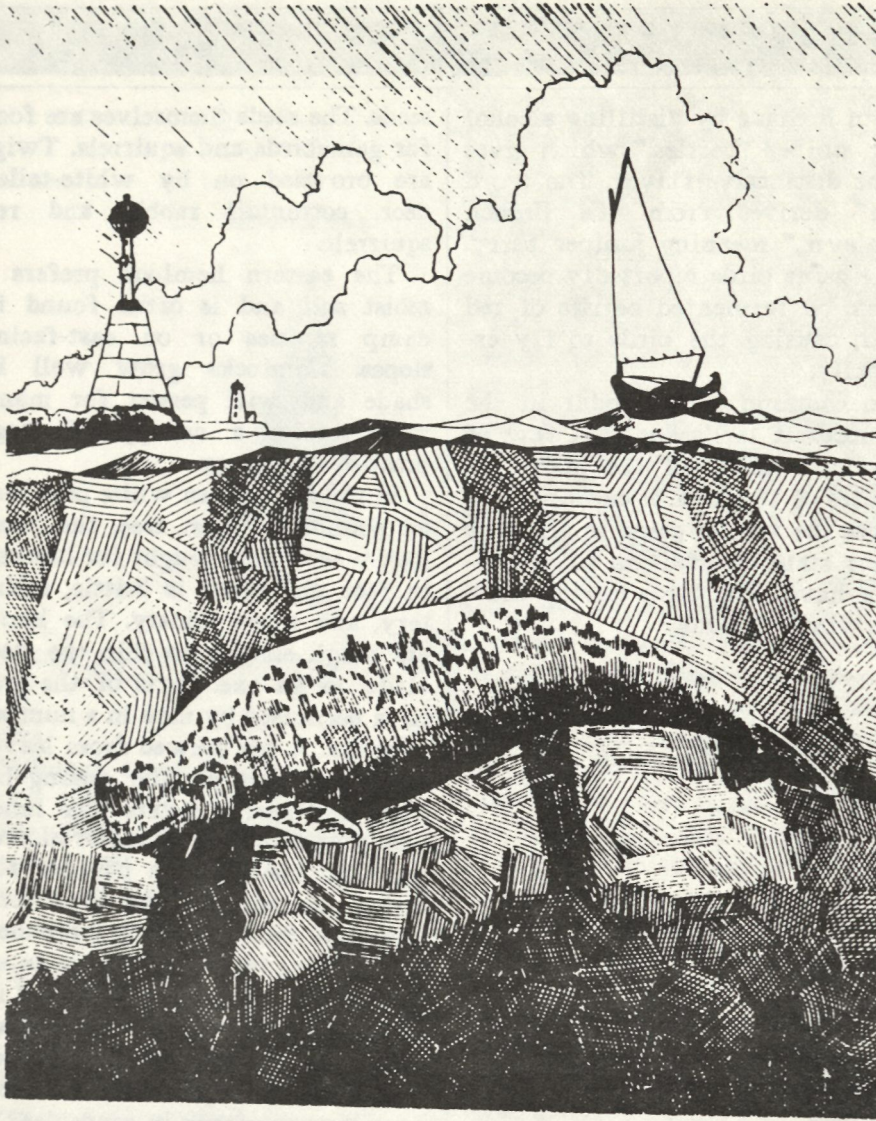
seeds. The seeds themselves are food for gamebirds and squirrels. Twigs are browsed on by white-tailed deer, cottontail rabbit, and red squirrels.

The eastern hemlock prefers a moist soil and is often found in damp ravines or on east-facing slopes. Hemlocks grow well in shade and will persist for many years under a canopy of large broad-leaved trees.

In the days when white pine was an abundant forest tree, the hemlock was widely sought for lumber. In fact, the wood is brittle, splintery, and often knotty. The knots are tough enough to chip the steel blade on an axe. Parts of the tree have been used by man in a number of ways. A tea brewed from leaves and twigs was popular among Indians and early settlers. The inner bark was used for dye material, and was also made into a poultice for curing wounds. Brooms have been fashioned from hemlock branches. But perhaps its widest use is as an ornamental. Grown singly or in groupings, this attractive tree is an asset to any property and provides an excellent evergreen buffer along property boundaries or roadsides.

As you are out and about this winter, look around at the different evergreens that you see. They are relatively easy to distinguish and can be readily identified with the help of a field guide to trees and shrubs.





In Memory of B.W.

by
Al Schelper Jr.
Illustration by
Dan Landrie

No other event while at sea fishing can compare with my once-in-a-lifetime encounter with B.W., the beluga whale. I would like to share that happening which

occurred on April 27, 1986.

He seemed to come from out of nowhere. He announced himself by the noise of the spout as he came to the surface for air. I looked up and

he was there. I could not believe my eyes. I realized that the oysters in my chum-pots and the loose ones had thrown around my boat had caused him to stay for so long and to come so close.

As the minutes passed, I managed to take many photographs. He came closer until he nearly bumped the starboard side of the boat. A few times as he stayed on the surface, he seemed to make an effort to look at me with his jet black eyes. It became quite clear that he meant no harm and posed no danger to the boat. I held my hand out, he looked at me, and came closer each time. Finally, I was able to reach out and make contact and in my own way express my affection to B.W. with my voice and my hand, and could see that this was warmly accepted.

The thing that made this so special was the fact that I was able to cross the barrier between man and sea creature in the wild and natural environment of his home, in which I was guest and visitor. I feel very special and privileged to have had this experience. It is unlikely I will have such an opportunity in my life ever again. I am grateful for being among those few to have this awesome and thrilling experience.

I am afraid I have not done well in putting the death of B.W. behind me.

Operation TIP (Turn in Poachers) is a cooperative program, managed jointly by the DEP's Bureau of Law Enforcement and the Connecticut Wildlife Federation. The reward program is being expanded to include marine mammals and other protected species. Contributions will aid in this expansion and in the overall success of the program. Prints of Dan Landrie's original drawing of the beluga whale may be obtained for a \$20.00 donation to TIP. For further information, please contact Conservation Officer Robert Aborn, TIP Coordinator, Connecticut Wildlife Federation, 27 Washington Street, Middletown, 06457. The toll-free TIP phone number is 1-800-842-HELP.

Mammography: the risks and the benefits

by
Kim Nauer
Environmental Intern

Though the X-ray machine was invented nearly a century ago, it is in only the last two decades that the possible dangers of radiation have become a widespread concern. As people learned more about ionizing radiation, they started questioning the X-ray procedure.

"And, it was correct that people did that," said Maura Wilson, a radiation control specialist at the EPA's Radiation Control Unit. Today, however, the technology is more advanced, and smaller, more controlled doses are given. And, today, for women, there is a real chance that an X ray could in fact be life-saving.

According to the American Cancer Society, one in every 11 women in the United States will get breast cancer in her lifetime. Every 15 minutes, three women will develop a tumor, and one of those women will die from it. Mammography, a recently developed local X ray, can detect foreign growths as small as one centimeter. Cancer discovered at that stage, said Wilson, can nearly always be controlled.

"If a minimal cancer is detected — from one to three centimeters — the five-year survival rate is 98 percent," she said. The odds go down, however, as the

tumor gets larger. As the tumor grows, the survival rate may fall to 55 percent. If the cancerous growth spreads to the lymph nodes, the survival rate is reduced to 10 percent.

"Why not catch it early and have the 98 percent survival rate?" Wilson said.

In recent years, there have been great advances in X-ray technology, Wilson said. This has been reflected in the statistics on breast cancer. In 1970, there were 70,000 deaths from breast cancer; by 1980, this number had been reduced to 36,000. While the reduction probably indicates an increased public awareness, it is also at least partly due to new machines designed specifically for breast X rays. Because they use faster film and take more precise pictures, these machines give lower dosages of radiation and higher image quality. Abnormalities are seen much earlier, and can be removed before they cause harm.

Wilson points out that there is a risk involved in any amount of radiation. The risk must be recognized and weighed against the benefits of early cancer detection.

"There is always a risk when you have X rays because you're changing something that's going on in

*Radiation Control Specialist Maura Wilson:
"You should have as few X rays as possible,
but when you need them, you need them."
(Photos: Robert Paier)*



your body," Wilson said. "You should have as few as possible, but when you need them, you need them."

There has been disagreement in the medical community on how often women should receive mammograms, but both the American College of Radiology and the American Cancer Society advise women to have a baseline set of X rays taken at age 35, and then periodic sets taken after age 45. They generally advise asymptomatic women not to have mammograms before age 35, since the risk of cancer is low and the breast tissue is more sensitive to the radiation's effects.

Wilson and Radiation Control Specialist Matthew Lennon, are working to try to lower these doses even more. They are responsible for monitoring all medical X-ray machines, ensuring that they conform to minimum exposure and image clarity standards.

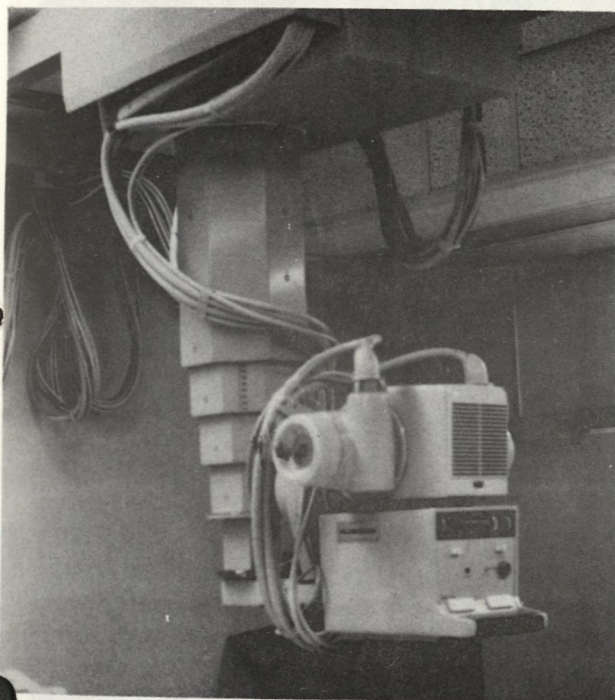
"There is a balance between the level of radiation the patient receives and the sensitivity of the film," Wilson said. "We try to reduce the patient's exposure as much as possible and still get a valid diagnostic image," she said.

Owners of X-ray machines are required to register with the Radiation Control Unit. After the machine and film processor have been installed, Wilson or Lennon will test the equipment by X raying a "phantom," a box of objects simulating different tumor sizes and shapes. With this, they are able to determine the sensitivity of the machine.

They compare the image quality, patient dosage, and scatter radiation measurements, and then determine areas that could be improved.

Certain variables, such as operation procedure and film type, can be changed to improve the results, Wilson said. "When we go into an office, we try to lower the exposure as much as possible using the system already in place," she said. Even though an office's older equipment may give off higher dosages, the inspectors can only recommend equipment changes. Connecticut, along with 48 other states, has no maximum dosage limits.

"There are, however, federal Food and Drug Administration (FDA) regulations and all our X-ray machines fall well within these standards," Wilson said. Generally, doctors try to use the best equipment available. "It makes sense to keep up with the technology, to lower the dose to the patient. It's good medical practice. The point, as always, is to decrease the risk



In recent years the great advances in X-ray technology have been reflected on the statistics on breast cancer.

and increase the benefit," she said.

In addition to their regular inspections, Wilson and Lennon are also participating in a nationwide study of mammography machines. This study is called "Breast Exposure: Nationwide Trends," or BENT, and is sponsored by the Center for Devices and Radiological Health and the FDA.

The same basic tests are performed in this study as for state registration, as well as more specific tests on X-ray positions and settings. Wilson and Lennon have already tested about half of the state's 100 registered mammography machines. "But new units are going in every day," Wilson said.

After units are tested, it is possible to determine which gives the lowest dose and produces the best diagnostic image. Wilson said, however, that the result is dependent on the skills of the operator. "It's very important that the operator understands the machine in some depth. Operators should have a fundamental grasp of both medical and radiation implications, as well as know how to get a good image with the lowest possible dose."

Currently, there are 18 states that require that operators be licensed. Since Connecticut has no licensing

requirements, theoretically untrained personnel can take X rays in doctors' offices and clinics. Hospitals, however, require that their operators be registered "technologists," a title that requires at least two years of training.

Wilson is herself a registered technologist. "Many operators," she said, "know how to take the picture, but if something goes wrong, they don't have enough technical expertise to fix it."

Though Wilson said she would like to see X-ray technologists licensed in the state, she said she feels that the state's X rays are generally as safe as they come. "We follow the ALARA principal — As Low As Reasonably Achievable — in determining dosage levels."

Over 90 percent of the radiation a person receives over a lifetime is medically applied, she said, and this is the reason so much attention is given to the X-ray machines. But, she stresses, these machines are life-savers. With technology advancing every day, Wilson said she hopes people will learn that X rays can be of great help in the early detection of cancer.

"We try to balance the risks against the benefits," Wilson said, "and in this case, the benefits far outweigh the risks." ■

Opportunities to Investigate, Inquire, and Discover

by
Martina Delaney
Environmental Education
Coordinator

Advertising agencies have long understood that attractive packaging is often necessary in putting forward a product. This concept has also been used in a more positive manner in supplementing classroom work in the environmental sciences. Residential outdoor camps in effect "package" environmental programs so that they are more stimulating and attractive to the students.

Environmental education should be packaged to include more than just the formal indoor classroom setting. If students and teachers have the opportunity to experience a three-day or even one-week residential outdoor program, the benefits can be very great.

Most teachers in Connecticut who have had extended environmental education programs in their classrooms, or who have been involved with an outdoor classroom experience on their school's grounds, may not be aware of the residential environmental education programs offered throughout our state.

The short-term goals of the outdoor experiences are set by the individual teachers, but the common aims are to stimulate the curiosity of children, to provide rich opportunities to inquire, investigate, and discover, to seek and to find ecological relationships, to develop a sense of responsibility, and to translate this all into the ability to take positive action for improving the



Photo: Robert Paler

quality of our environment.

The DEP has published a directory of residential camps in Connecticut that either specialize in environmental education or offer that topic as part of their program. *Connecticut Residential Environmental Education Camps* is offered free to teachers through DEP, Information and Education Unit, 165 Capitol Ave., Hartford 06106. The publication is not an endorsement of these camps.

Included in this directory is a general program development check list on preparation and organization. All the information may not apply, but check with the residential camp you are interested in before you start planning and they will be of great help to you.

Resident school programs have been in existence for over 30 years in the United States. In Europe and Canada, many school districts have residential programs as an integral

part of the school curriculum.

Residential school programs can be useful, exciting, and provide a valuable growing experience for students. Some schools have found that attending resident programs significantly increases academic and social development as well as improves standardized test scores.

From the public school system in Malborough, Massachussets, we learned about an exciting new program. In September, 1985, a retired high school science teacher was appointed part-time consultant and resource person for second and fifth grade teachers and students. This has occurred as part of the "Grandteacher Program."

Some of the program's goals are to reduce the anxiety of some teachers who do not feel comfortable with science lessons, to provide examples, help, and support, and to increase the exposure of the children

to science activities and experiences.

The "grandteacher" is not an evaluator, but a treasury of experience in science teaching whose knowledge is made available in a non-threatening atmosphere. The program helps teachers develop a repertory of science lessons that they feel comfortable with, and can use year after year. Further, it is intended to promote in the students a positive attitude toward science, with the hope that this may yield some good science teachers for the future.

The grandteacher works directly with the classroom teachers and the Science Curriculum Committee,

keeping easy "banker's hours," and thoroughly enjoying contact with eager, youthful minds.

■
Berlin High School has taken a giant step in sharing its strong science program with elementary and middle schools. A Science Resource Center has been opened this fall on the mezzanine of the Media Center, where natural science collections, specimens, informational materials, charts, and worksheets are on display. Many of these are available to local teachers for loan, and the area will serve as enticement to further science study by presenting frequent programs to students of va-

rious grade levels.

The first program, presented to third grade students, was entitled "The Native American's Handy Dandy Snack Pack" and shows the uses of Connecticut's natural resources for everyday needs as seen through the eyes of our first environmental educators, the New England Indian ecologists.

■
If you have any news of environmental education programs, either in the classroom or in a less formal setting, please let us know. Address correspondence to Martina Delaney, DEP Information and Education, 165 Capitol Ave., Hartford 06106.■

For Your Information

Household Hazardous Waste Update

by
Leslie Lewis
Citizens' Participation
Coordinator

● Readers of the *Citizens' Bulletin* are probably familiar with the problems involved with the improper use and/or disposal of some household products. The DEP has been working with many communities to set up special collection days where people could bring these unwanted substances.

Connecticut officials are not alone in their concern about household hazardous waste. At a recent conference in Washington, D.C., people from all over the United States and Canada gathered to discuss the growing interest in this area. Over 500 collection programs have been held nationwide, ranging

from small, single-town efforts to large-scale, state-run events. Everyone agrees, however, that grass-roots support has been at the heart of this movement.

Collection figures for Connecticut alone have been impressive. So far, 74 towns have participated in 35 collection days. At least 5500 people brought in over 105,000 pounds and 30,000 gallons of waste — waste which otherwise would have been thrown in the trash, poured down the drain, or just stored for lack of a safe disposal option.

Many more communities are scheduling collection days for the spring. If you want to know if your town is among them, or if you would like additional information about hazardous household waste, please contact Leslie Lewis, Information and Education Unit, DEP, State Office Building, Hartford 06106, or call (203) 566-3489.

Hazardous Waste Management Conference

There will be a conference focusing

on small quantity generators of hazardous waste on Tuesday, January 27, at the Ramada Inn in Meriden. Topics presented will be of interest to businesses which generate or transport hazardous waste, commercial hazardous waste facilities, health directors, consultants, and trade associations.

Presentations will provide accurate, up-to-date information on both technical and practical hazardous waste management issues, including information on existing Connecticut regulations and new federal requirements. Presentations on technical topics are made by senior DEP staff members who have particular expertise in their subject areas. These include waste determinations, recycle-reclaim of waste, transportation, enforcement, waste oil, and underground storage tanks.

Speakers will allow at least 10 minutes for questions at the end of each presentation. Publications of interest will also be available.

The conference cost is \$25, which includes materials and lunch. Please contact Leslie Lewis at the above address and phone if you would like registration information. ■

Report on the Osprey

Some decline, but overall the news is good.

by the staff of the
DEP Bureau of Wildlife

"Results from the 1986 osprey nesting season have been tabulated and show a slight decline from last year," reported DEP Wildlife Bureau Assistant Nongame Biologist Julie Victoria.

"A total of 39 active nests were found this year, as compared to 44 last year," Victoria added. "This 11 percent decrease in active nests corresponds with an 11 percent decline in the number of young fledged. But, because 1985 was a record season for ospreys in Connecticut, the Bureau is not disappointed with this year's success. Factors working against the species included avian predation and cold, rainy weather during the first week of June."

One of the most widely-distributed birds in the world, the osprey, or fish hawk, was historically plentiful in New England, with approximately 1,100 active nests located between New York and Boston in the late 1940s. By 1973, however, the number was reduced to 115, and one year later, only nine active nests were recorded. The decline in nesting ospreys is primarily attributed to use of the pesticide DDT, which polluted river ecosystems and was ingested by the fish-eating birds, resulting in egg shell thinning and breaking.

"Federal restrictions on the use of DDT and other organochlorine pesticides, adopted in the early 1970s, have prompted a steady recovery of osprey populations," Victoria explained. "Now the greatest limitation to their restoration is an

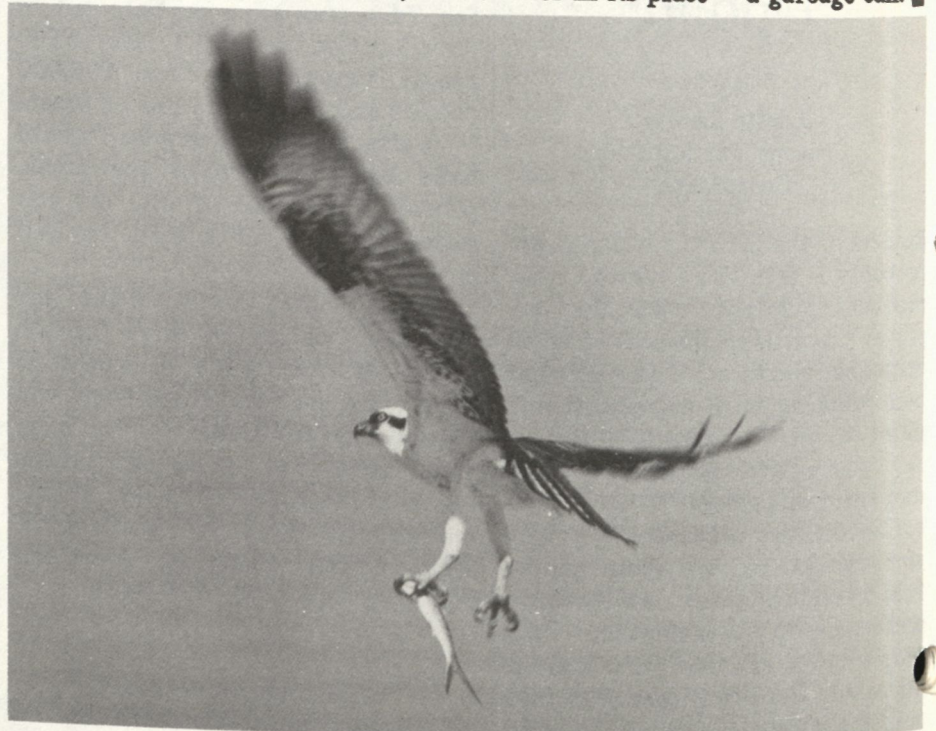
ever-decreasing number of nesting sites due to continued coastal development."

Though ospreys prefer the tops of snag trees near water for nest sites, they adapt to available sites, including duck blinds, channel markers, the roots of upturned trees, chimneys, school buildings, and utility poles. The birds readily use artificial nest platforms which wildlife biologists employ in areas lacking natural nest sites. Osprey pairs usually return to the same nest site in April each year, adding new nest materials, including not only sticks, but seaweed, bones, driftwood, and

cornstalks; litter from nearby beaches and marshes is sometimes included.

"Unfortunately, ospreys are not discriminating trash pickers," Victoria continued. "Monofilament fishing line and plastic six-pack yokes are now commonly found in their nests. Recently, one immature osprey was found with a plastic six-pack yoke wrapped twice around its neck. Fortunately, the bird was freed, avoiding almost certain strangulation."

"Such incidents can be prevented," Victoria stressed, "by putting litter in its place — a garbage can."



Restrictions on the use of DDT and other pesticides have brought about steady recovery of osprey populations. (Photo: Irene Vandermolén)



Photos: Robert Paler

Environmental Legislation from the 1986 General Assembly

Compiled by

Thomas Gaffey
Executive Assistant, DEP

Tessa Gutowski
Senior Environmental
Analyst

Elaine Korenkiewicz
Wildlife Biologist

The following legislation, enacted by the 1986 Session of the Connecticut General Assembly, is of significance to the DEP's Division of Environmental Quality. The summaries here were abstracted from the Summary of 1986 Public Acts — Connecticut General Assembly, published by the Office of Legislative Research, Hartford.

Public Act 86-28: An Act Concerning the State's Hazardous Waste Program.

Public Act 86-28: An Act Concerning the State's Hazardous Waste Program.

This act allows the DEP to adopt

regulations and alter hazardous waste programs in accordance with amendments to federal hazardous waste laws without requiring state legislative action every time the federal law is changed. The act also makes it clear that federal authorities need not approve individual le-

gal actions against violators of the state's hazardous waste program.

Effective Date: April 21, 1986.

Public Act 86-30: An Act Concerning Safety Inspections on Dams.

This act exempts from periodic DEP inspection any dam the commissioner finds will cause negligible damage if it fails. It also requires the department to adopt regulations setting out criteria for making these findings. An initial inspection is still required.

Effective Date: July 1, 1986.

Public Act 86-82: An Act Concerning Pollution Permits and Orders.

This act allows the commissioner of the DEP to require anyone discharging material into state waters to install, maintain, and operate systems to monitor the discharge permits, applications, or orders to take into account past violations of state environmental laws, orders, permits, and regulations.

Finally, the act requires the commissioner to delegate the power to approve some water discharges to municipal water pollution control authorities. With certain exceptions, it requires the municipal permit and approval process to conform to the state's. In spite of any delegation, the commissioner retains final authority to act on a discharge and can pre-empt any municipal decision.

Effective Date: July 1, 1986.

Public Act 86-100: An Act Concerning Notification of the Application of Pesticides.

This act requires pesticide applicators, before agreeing to apply a pesticide, to give the person requesting the application and the resident or manager of the treated property a copy of the warning and descriptive data contained on the pesticide la-



bel. Prior to subsequent applications of other pesticides the applicator must present the parties with a copy of the entire label for such pesticides. Violators are subject to a penalty of up to \$90.

Effective Date: October 1, 1986.

Public Act 86-203: An Act Concerning Penalties for Violation of Water Pollution Statutes.

This act establishes a civil penalty of up to \$10,000 for violating a DEP cease and desist order or failing to comply with the commissioner's requirements issued under his general powers. These include the power to require bonds and permit fees and conduct investigations and inspections.

The act also doubles the criminal penalty for a repeat conviction of violating water pollution control laws, DEP cease and desist orders, and requirements made under the commissioner's general powers. The penalty increases to up to two years imprisonment, a fine of up to \$50,000, or both. The act subjects responsible corporate officers to these criminal penalties.

Finally, the act specifies that each violation for knowing submission of false information to the DEP under the water pollution control laws, DEP's cease and desist orders,

and the commissioner's general powers constitutes a separate offense.

Effective Date: October 1, 1986.

Public Act 86-219: An Act Extending the Moratorium on the Disposal of Hazardous Waste in a Landfill and Extending the Reporting Deadline of the Hazardous Waste Task Force.

This act extends from July 1, 1986, to July 1, 1987, the existing prohibition on disposing of most hazardous wastes in landfills. It extends from January 1, 1986, to January 1, 1987, the reporting date of a task force of legislative and gubernatorial appointees charged with classifying and determining the hazardous wastes that may be safely managed in landfills.

Effective Date: May 28, 1986.

Public Act 86-239: An Act Concerning Protection of the Waters of Connecticut.

This act:

1. Gives the commissioner of the DEP the power to order polluters and suspected polluters to investigate sources of pollution and exposes them to existing civil penalties for violating the commissioner's order;

2. Repeals the law requiring the commissioner to investigate all water discharges and instead gives him the power to investigate them;

3. Allows a court to impose damages of up to two times the cost of cleanup on a polluter who willfully contaminates state land and waters;

4. Specifies that daily penalties imposed for continuing violations of the water pollution control laws or failure to comply with an order to abate pollution can be stayed only during an appeal of, or hearing on, that violation and not during unrelated hearings on that violation and not during unrelated hearings or appeals;

5. Allows the municipal water pollution control authority of a town which contains a city or borough to take actions to comply with a pollution abatement order without the city's or borough's consent;

6. Allows a municipality which contains, removes, or mitigates pollution caused by oil, chemical, or hazardous waste spills or other discharges to get reimbursement from the responsible party; and

7. Consolidates some existing language concerning the commission-

er's powers and repeals redundant language.

Effective Date: Upon passage.

Public Act 86-332: An Act Establishing a Program for Monitoring Dioxin Emissions from Resources Recovery Facilities.

This act requires the commissioner of the DEP to adopt regulations in consultation with the commissioner of the Department of Health Services (DOHS) establishing ambient and stack emission standards for dioxins, furans, and other comparably toxic chemical compounds emitted by resources recovery facilities. It forbids emissions in excess of the standards and establishes penalties for violations. The act also requires development of resources recovery facility operating and maintenance plans and procedures; a DEP program concerning dioxin or furan emissions; and studies of existing dioxin levels and of source separation and recycling at resources recovery facilities.

The act allows municipalities participating in or hosting a resources recovery facility to appoint a facility inspector. It also permits the host town's chief elected official, health director, or their designees to have full access to the facility. The act establishes a fund for

resources recovery facility monitoring and an advisory board for solid waste management alternatives.

Effective Date: July 1, 1986, and applicable to resources recovery facilities operating on or after that date.

Public Act 86-353: An Act Concerning Registration of Pesticide Application Businesses.

This act:

1. Requires pesticide applicator businesses that employ at least two certified applicators to register annually with the DEP and pay a \$60 fee;

2. Allows the commissioner of the DEP to deny, revoke, or suspend a registration certificate;

3. Requires businesses with more than one office or branch, or which engage in more than one category or subcategory of pesticide application, to have at least one certified supervisor for each branch and application category or subcategory;

4. Requires businesses and all applicators to keep detailed records of the pesticides they apply for at least five years;

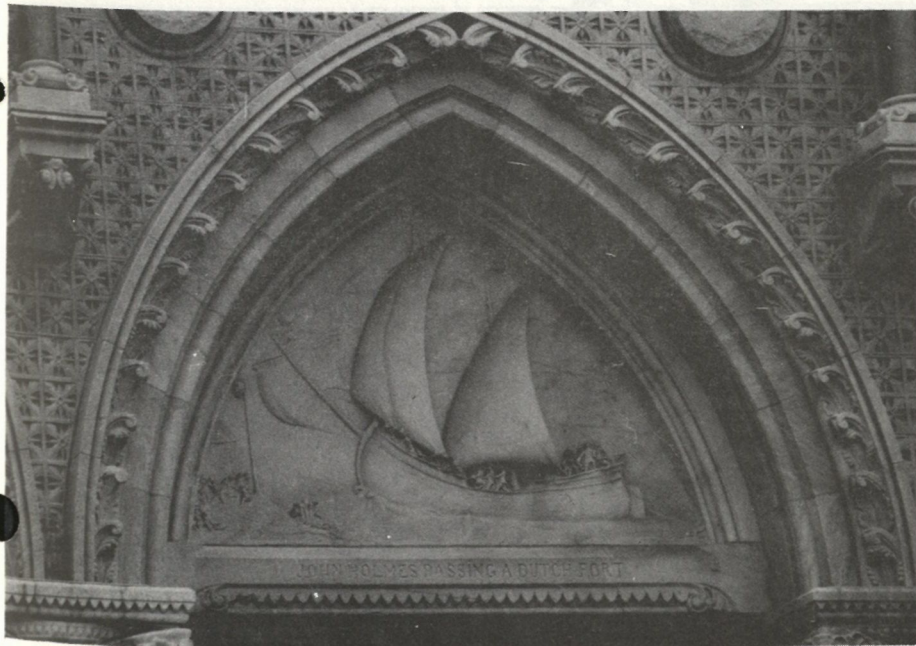
5. Requires businesses, in response to a customer's written request, to provide copies of the records concerning pesticide applications performed for that customer;

6. Authorizes the commissioner to inspect records and adopt regulations to implement the new requirements; and

7. Penalizes violators by requiring them to forfeit up to \$5,000 to the state for each day the violation continues.

Effective Date: October 1, 1986.

Public Act 86-364: An Act Concerning Pesticide Fees and Expenditures from the Emergency Spill Response Fund for Ex-



penses Incurred Because of Groundwater Contamination from Pesticides.

This act increases pesticide registration, applicator, and dealer fees and establishes a temporary fee for golf courses longer than 1,000 yards. It requires all the new revenues to be deposited in the Emergency Spill Response Fund. The act earmarks the new revenues for certain activities pertaining to groundwater contamination from pesticides. These include engineering reports, a study, short-term provision of potable water, and public education.

The act allows the spill fund to be used for engineering reports needed to determine the long-term solution to pesticide-contaminated drinking water supplies even if the responsible party is known, has requested a hearing, or has an order pending appeal.

Effective Date: October 1, 1986.

Public Act 86-382: An Act Concerning the Protection of Estuarine Embayments.

This act requires the commissioner of the DEP to establish and implement a water quality siltation and erosion program for estuarine embayment.

Under this act, the DEP is allowed, after evaluation, to make a grant to any municipality included in the coastal management program for projects to improve estuarine embayments.

The program terminates on July 1, 1990, unless reestablished under Connecticut's sunset law.

The act authorizes \$200,000 in bonds for grants.

Effective Date: July 1, 1986.

Public Act 86-420: An Act Establishing a Clean Water Fund and Concerning an Agreement Between the Connecticut Water Company and the Metropolitan District in Hartford County for Constructing and Equipping a Water Filtration Plant.

This act establishes a revolving clean water fund to finance municipal water treatment projects and authorizes \$40 million in state bonding for it. The clean water fund will finance all reasonable and necessary municipal water treatment project costs through a combination of low interest loans and outright grants. The loans and grants replace the prior water treatment project funding program which used state and federal funds to give municipalities grants for 55 percent of certain, more limited, project costs. This act authorizes grants for 20 percent of the total cost and loans for 80 percent, except for projects undertaken to mitigate pollution resulting from combined sewers and storm drains, in which case, the grants and loans will each make up 50 percent of the cost. The act fixes the loan terms at a maximum of 20 years and the interest rate at 2 percent. After 2007, the grants will no longer be available, and the act requires projects to be funded entirely by loans.

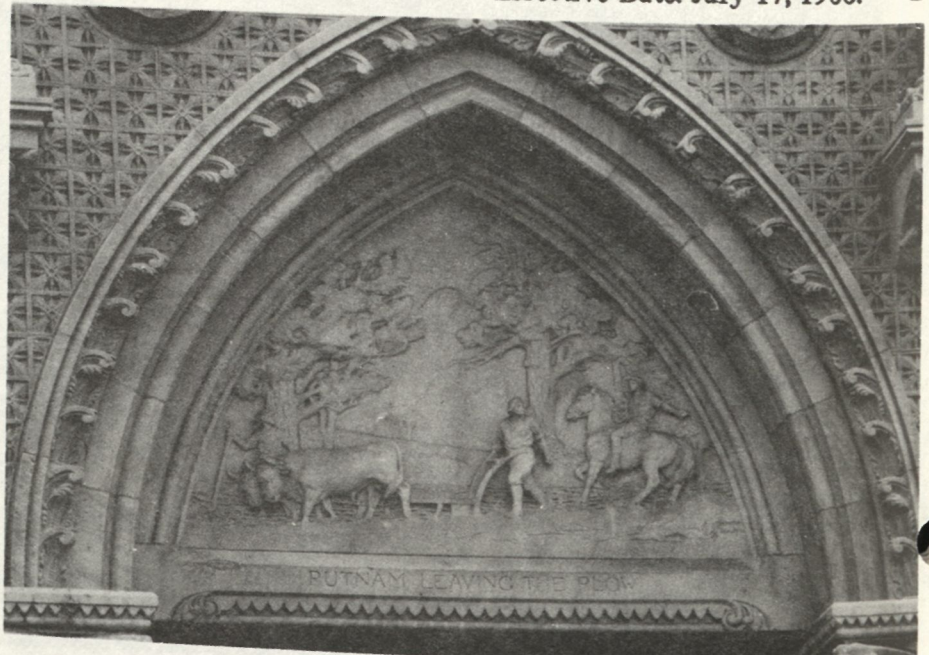
It also allows the Metropolitan District Commission (MDC) and the Connecticut Water Company to construct a water filtration plant in the Collinsville section of Canton. The plant may cost no more than \$3.5 million, of which the MDC may contribute no more than \$2.1 million and the Connecticut Water Company \$1.4 million.

Effective Date: July 1, 1986.

Special Session II Public Act 86-1: An act authorizing the use of a portion of the general fund surplus for the fiscal year ending June 30, 1986, for a town improvement program, a municipal solid waste recycling program and revenue sharing grants to towns, and authorizing the use of certain unappropriated surplus for the redemption or purchase of outstanding state indebtedness.

This public act established a municipal solid waste recycling program which requires the commissioner of the DEP to develop a plan for the program. The plan must consider the following: (1) be consistent with the state-wide solid waste management plan; (2) give priority to regional approaches; (3) provide for grants; (4) establish standards; (5) provide for the development of intermediate centers; (6) provide for financial assistance from the municipal solid waste recycling trust fund; and (7) review existing contracts of waste-to-energy facilities and recycling. An allocation of \$10 million from the general fund surplus established a fund to be known as the "municipal solid waste recycling trust fund."

Effective Date: July 17, 1986. ■



Outdoor Discovery Program Events

January 17: Ice and Snow Festival — Winter provides us with snow and ice, and we can use these two forms of winter water to learn more about the wonders of nature. Ice fishing, skating, and cross country skiing will be some of the activities prepared for this day. Bring your own equipment and join our experts to learn about this winter fun. *Location: Bigelow Hollow State Park, Union. Time: 1:00 p.m.*

January 25: Ice Fishing and Winter Survival Clinic — Join DEP educators and Fred Nassif, from Nassif Sporting Goods Store, Manchester, for an informative "hands-on" program. Learn the basics of ice fishing — equipment, bait, and special techniques. Winter survival skills will also be a part of this program. *Location: Bolton Lake Boat Launch, Rte. 44, Bolton. Time: 1:00 p.m.*

February 7-8: Family Overnight Winter Weekend — Spend two days learning about the outdoors with some of the best naturalists and environmental educators in the state. This program will introduce you to all sorts of winter activities and environmental issues. You will stay in warmth and comfort at the Channel 3 Country Camp, a winterized camp where you will enjoy a weekend of fun and learning. All meals and lodging will be provided at \$20.00 per person. *Preregistration required.* Call 566-8108 or write to Family Winter Weekend, 165 Capitol Ave., Room 108, Hartford 06106 for more information and preregistration package.

February 28: Animal Tracks and Signs — Winter is an excellent time of year to observe the movement and behavior of animals. Their "stories" are often left in the snow in the form of tracks, feeding stations, and tunnels. Learn to identify these signs with a DEP naturalist. *Location: Gay City State Park, Rte. 85, Hebron. Time: 10:00 a.m.*

March 28: Maple Sugaring — Learn how to make maple syrup. This is the time of year when the sap begins to flow in the trees. We will identify sugar maple trees, tap one of the trees, and demonstrate the process of making maple syrup. We will sample homemade maple syrup over pancakes. *Location: Penwood State Park, Rte. 185, Bloomfield. Time: 1:00 p.m.*



April 25: Signs of Spring — Winter has an end and with it comes the beauty of spring. Come and enjoy the rebirth of nature with DEP naturalist Alberto Mimo. Spring flowers and arriving birds will be discussed. *Location: Chatfield Hollow State Park, Killingworth. Time: 10:00 a.m.*

For further information on any of these programs, please contact DEP Information and Education Section, 165 Capitol Avenue, Hartford 06106 or phone (203) 566-8108.

Lectures at Dinosaur State Park

The Friends of Dinosaur Park Association announces the following illustrated lectures at Dinosaur State Park:

Tuesday, January 27 — Dr. John Hubert, Professor of Geology, University of Massachusetts. "The Triassic-Jurassic Paleoenvironments of the Connecticut Rift Valley." Through a geological and geophysical framework, geologists have been able to reconstruct alluvial fans, braided stream beds, playas, and lakes that existed in the rift valley, as well as document fluctuations in the paleoclimate of that time.

Tuesday, February 10 — Dr. John Rodgers, Professor of Geology, Yale University. "The Geologic History of the Rocks of Connecticut." The rocks of our state are visible to us today because of long-continued erosion by water but also, during a geologically brief and recent period, by the continental ice of the Ice Age. The original formation of these varied rocks will be discussed.

Tuesday, February 10 — Dr. Walter Combs Jr., Associate Professor of Biology, Western New England College. "Collecting the Dinosaurs, Past and Present." Because of their size

and remote areas where they are found, the collecting of dinosaur remains has always been a difficult job. The great early collectors established and refined techniques that are still in use. Active collecting continues both in the United States and other countries, with many new dinosaurs added to the scientific literature over the past decade.

Each lecture will begin at 7:30 p.m. at Dinosaur State Park, West Street, Rocky Hill, and will be followed by a question and answer period and coffee. Donation: \$2.00.



Seedlings Available

Robert L. Garrepy, Director of DEP's Bureau of Forestry, announced that tree and shrub seedlings, including a new wildlife habitat package, may now be ordered from the State Forest Nursery for the 1987 spring planting season. Connecticut landowners may purchase the seedlings for Christmas tree plantings, reforestation, soil stabilization, wildlife, or other conservation purposes. Those wishing to purchase seedlings should place their orders as soon as possible, because some species sell out very quickly. All seedling orders will be shipped to one of the nine pick-up points, located throughout the state, in late March or early April. The

landowner will be notified by postcard when the order may be picked up.

Two seedling programs are available. The first, new in 1986, is the "Wildlife Habitat Package," which consists of 75 tree seedlings (25 hemlock, 25 Norway spruce, and 25 crabapple) and 25 shrub seedlings (autumn olive). At least one quarter acre of plantable land is needed to qualify for the 100 seedlings provided under this program. Autumn olive and crabapple provide food for a wide variety of bird species. The hemlock and spruce trees supply evergreen cover and protection, particularly in the winter. Together, the trees and shrubs produce a mini-habitat for wildlife in about five years.

Landowners are advised that autumn olive spreads vigorously if not controlled by mowing or cultivation. The packet costs \$20., including delivery to a pick-up point.

The second program, "Forest Planting Stock," is available to Connecticut landowners with larger planting areas, who intend to establish a forest plantation, develop a commercial Christmas tree planting, or who wish to augment existing forests standing on one or more acres (not including house lot). Forest Planting Stock orders for conifer species *must* be in multiples of 250. The price is \$18.50 per 250 seedlings, or \$74. per thousand. A typical Christmas tree plantation has about 1400 trees per acre. "Forest Planting Stock" orders require approval of a service forester who may come to inspect the planting area.

"Two restrictions are placed on all orders," Garrepy said. "They cannot be resold with roots attached nor be used for ornamental planting. Seedlings are quite small when received (from six to 12 inches tall). They grow slowly for the first year or two, and then more rapid growth and development can be expected."

Write or call one of the following offices for an order form:

State Forester's Office, 165 Capitol Avenue, Hartford, CT 06106
Phone: 566-5348

Western District Headquarters, 230 Plymouth Road, Harwinton, CT 06791 Phone: 485-0226

Eastern District Headquarters, 209 Hebron Road, Marlborough, CT 06447 Phone: 295-9523

State Tree Nursery, RFD #1, Box 23A, Voluntown, CT 06384 Phone: 376-2513

Correction Noted

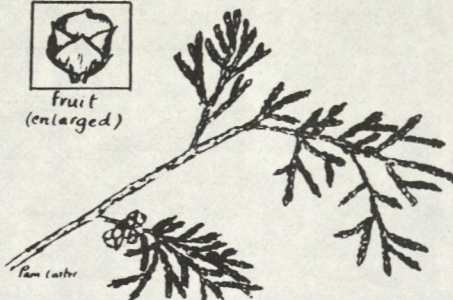
In the December 1986 *Citizens' Bulletin*, "The Earthquake Risk in Connecticut" contains two (2) errors in references to figures. 1.) Figure 2 "Seismic stations in operation in the Northeast during the period from April to June 1983" is not referred to in the text, and should appropriately be referred to on page 5, last paragraph, as follows: "Since 1975, the Northeast Seismic Network has maintained a number of seismic stations measuring earthquakes in the New England Region." (The reader should refer here to what occurs in print as Figure 2, on page 4). 2.) On page 4, third paragraph, last sentence: The reference figure here should be to Figure 5 (as presented in the printed article), not Figure 4. We regret these errors.



Trailside Botanizer

Atlantic Coast White Cedar

by
Gale W. Carter
Illustration by
Pam Carter



The Atlantic Coast white cedar (*Chamaecyparis thyoides*) is a member of the cypress family and is sometimes called white cypress. It is confined almost exclusively to swamps, bogs, and marsh areas. The range of this species is from southern Maine to northern Florida. It occurs usually in pure stands as a thin belt along the Atlantic Coast Plain. In southern New England, white cedar often replaces black spruce in sphagnum bogs.

It is a very slender evergreen with a sharp pointed crown. Spec-

imens range from 40 to 60 feet in height, but tend to be taller in the southern part of its range.

The leaves are small, scale-like, and closely packed, with pointed tips. Collectively, they give the ends of the branches a feather-like appearance. When crushed, the foliage is aromatic, a characteristic it shares with the wood. The bark varies from red to gray and is shredded.

In this species of cedar, the sexes are on separate branches of the same tree. Pollen from the cylindrical male flower is shed in March at the

same time the female flower is developing. The small sphere-shaped cones mature the same year. They are about one fourth of an inch in diameter. The seeds are winged.

The wood is very resistant to decay and therefore durable. It is used in many situations where it has to come in contact with soil. For many years it was used for railroad ties, barrel staves, fence posts, and telephone poles, as well as for boat building.

During the Revolutionary War, it furnished charcoal for making gun powder. The early Colonists used the wood for log cabins and for masts for their sailing vessels. Because this species of cedar has wood with a resonant quality, it was sometimes used for making pipe organs. White cedar has only a limited value for wildlife, but does furnish cover for animals during the winter. The white-tailed deer use it for browse.

1987, Gale W. Carter

Letters to the Editor

I agree, there is a strongly-held theory that America's indigenous people originated here. But, I still contend that native people were the first Connecticut settlers, circa 10,000 years ago. That is my theory.

I do not mean to harass you with my opinions. I simply hoped you might editorially avoid phrasing that could suggest there was no human habitation of this area previous to the European settlers.

I am aware of your fine coverage of American Indians in the state (and I am aware of the firing-line situation the DEP finds itself in when dealing with native issues). I also am especially grateful for your fine coverage of the AIAI and thank you for it. My wrath is not much directed at you or your publication, but at societal attitudes. If we don't speak up, we don't exist.

Best wishes with the future of the *Citizens' Bulletin*. I have been a

subscriber since serving on the Conservation Commission for the town of Washington.

Karen Coody Cooper
Director of Education
American Indian Archaeological Institute

I have enjoyed the various articles in the *Citizens' Bulletin*. I find them interesting and educational and enjoy the humor which is in good taste, as in Penni Sharp's article, "The Shrew," Nov. '86. I also like Michael D. Klein's cover illustrations.

Joe Daly Jr.
Wilton

The *Citizens' Bulletin* welcomes comments from our readers. Let us know what you think. Please limit letters to 250 words, and include name, address, and phone number. Letters are subject to editing.

Endnote

There are moments when one feels free from one's own identification with human limitations and inadequacies. At such moments one imagines that one stands on some spot of a small planet, gazing in amazement at the cold yet profoundly moving beauty of the eternal, the unfathomable: life and death flow into one, and there is neither evolution nor destiny; only Being.

Albert Einstein



Photo: Robert Paier

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